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Fish, *Hasemania crenuchoides* Zarske and Géry, 1999 (Ostariophysi: Characiformes: Characidae): Rediscovery and distribution extension in the upper rio Paraná system, Minas Gerais, Brazil.

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Hasemania crenuchoides Zarske and Géry, 1999 was described on the basis of holotype plus 83 paratypes, collected in 1965 by Harald Schultz, from the córrego Planaltina in the rio Paranaíba drainage (upper rio Paraná system), Planaltina municipality, state of Goiás, near Brasília, Distrito Federal, Brazil. Since then there was not any further unequivocally reference to the species in other sites in the upper rio Paraná system; still, collections made near and in the type locality did not succeed in capture additional specimens. Herein we refer to new, recently collected, specimens of *Hasemania crenuchoides* and extend the area distribution of the species to the rio Grande, in the state of Minas Gerais.

Collections of the project "Fish fauna from the Alto Paraná river region", part of the special research program BIOTA of the Fundação de Amparo à Pesquisa do Estado São Paulo (FAPESP) (http://www.biota.org.br), under the coordination of FL, have captured several specimens of *H. crenuchoides* (Figure 1) in the headwaters of the rio Uberaba (19°40'59.8"S, 47°40'8.6"W), Ponte Alta municipality, State of Minas Gerais (Figure 2), an area of permanent protection (APP, Área de Proteção Permanente) (collecting permits Nº 009/2003 and Nº 150/2005 – DIFAP/IBAMA). Specimens, deposited in the DZSJRP Fish Collection (DZSJRP 8730, 133 specimens), were captured with sieves (3 mm mesh) and seines (2 mm mesh), and the collecting depth varied from 200 mm to 1200 mm. Comparisons were made with *Hasemania crenuchoides* type-specimens (holotype MZUSP 52732 and two paratypes MHNG 2594.044) and original description of Zarske and Géry (1999).

Figure 1. *Hasemania crenuchoides*, DZSJRP 8730, female, 62.4 mm SL, rio Uberaba, Ponte Alta, Minas Gerais.

Live specimens present a clearly reticulated color pattern, scales have metallic bluish-purple reflections, and dorsal, anal, and caudal fins, mostly the last, are reddish and with dark rays (see also Géry 1977: 540, bottom figure). Preserved specimens (Figure 1) have dark bodies, with chromatophores distributed all over the body, concentrated mainly dorsally, and forming an irregular, vertically elongated, humeral spot, and also a longitudinal, medium-lateral, stripe from the vertical between head and dorsal-fin origin, extending through middle caudal-fin rays; scales with posterior margin dark, making the body slightly reticulated.

Figure 2. Headwaters of the rio Uberaba, Ponte Alta municipality, State of Minas Gerais.

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Character comparisons between *Hasemania crenuchoides* type-specimens and the original description were most coincident (see Table 1 for morphometric proportions and counts), except that specimens from rio Uberaba have a conspicuous humeral spot and four teeth in the inner premaxillary tooth series (vs. humeral spot absent and five teeth in the inner premaxillary tooth series in the type-specimens). The absence of a humeral spot is probably due to depigmentation, because type-specimens are unnaturally pale, suggesting being exposed to inadequate light during a long period of time. On the other hand, the difference in the number of teeth in the inner series of the premaxillary (five in the type-specimens and four in the rio Grande specimens) is the unique, clear and discrete, difference between the two populations, which is being properly evaluated in a more in deep and inclusive analysis, aiming the taxonomic revision and phylogenetic analysis of *Hasemania* species, in progress by JPS and FL.

Uieda et al. (1987) refer to *Hasemania melanura* Ellis, 1911 to the rio Claro, an affluent of the rio Uberaba (rio Grande drainage, upper Paraná system) in the municipalities of Sacramento and Uberaba, state of Minas Gerais. That species name was used, in our opinion, probably based on the figure from Géry (1977: 540, bellow) that shows two alive specimens of "a new species of *Hasemania* close to *H. melanura*", latter described as *H. crenuchoides* by Zarske and Géry (1999). It is important to note that *Hasemania melanura* was originally described to Porto União da Vitória (municipality of União da Vitória, State of Paraná), rio Iguaçu drainage, being restricted to that basin (Lima et al. 2003), and not occurring in the upper Paraná system. Nonetheless, the drawing presented by Uieda et al. (1987, figure 2A) strongly suggests *H. crenuchoides* (see Zarske and Géry 1999: figure 1) instead of *H. melanura* (see Ellis 1911: Plate 1, figure 2). Material collected by Uieda et al. (1987) are now probably lost (Virginia Uieda, pers. com.), but came from same river watershed we have collected the new specimens reported here, what strongly suggests same species.

Headwaters of the rio Uberaba are a marshland mostly with abundant Cyperacea, Poacea, and algae (*Hapalosiphon* sp., *Stigonema* sp., *Phormidium* sp., *Merismopedia* sp., *Aphanotece* sp., and *Scytonema* cf. sp. – Cyanobacteria; *Spirogyra* sp., *Oedogonium* sp., *Microspora* sp., *Scenedesmus* sp., *Closterium* sp., and *Mougeotia* sp. – Chlorophyta; Bacilariophyta - Diatomacea), crystalline water, and muddy bottom. *Hasemania crenuchoides* specimens were captured jointly with *Microcharacidium* cf., the most abundant species, *Hyphessobrycon* sp., and *Rivulus* sp. (respectively DZSJRP 8733, 8731, and 8732). The larger and less numerous specimens of *H. crenuchoides* could be easily seen among smaller specimens from other species, swimming in the open water or sheltered inside portions with submerged vegetation. Among six specimens examined for stomach contents, three have consumed mostly angiosperms (Anthophyta), one angiosperms and Chironomidae larvae (Diptera), one angiosperms and Trichoptera, and one mostly Diptera larvae, followed by angiosperms and tecamoebas.

The marshland habitats seem to be preferred by *Hasemania* species. Most *Hasemania* spp. specimens collected by some of us (FL, FRC, and JPS) in the upper Paraná came from similar lentic habitats, and very few were form lotic water sites. These lentic habitats, even being one of the most altered by anthropic actions, were not very often explored, and we preview that diversity in the genus could increase with new species from marshland sites in other drainages. Also, this could be the case for *Hasemania maxilaris* and *H. melanura*, both described by Ellis (1911) for the rio Iguaçu, which are until now only known from type-specimens collected by Haseman in 1908. It is interesting to note that most of the Haseman collections in the União da Vitória, the type locality of referred species, were done in muddy places, flooded margins, swamps, and lagoons of the rio Iguaçu (cf. Haseman and Eigenmann 1911: 308), and these could be indeed the sites of preference in the rio Iguaçu drainage, which should be extensively explored to rediscover those species.

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Table 1. Morphometric and meristic data for *Hasemania crenuchoides* from Córrego Planaltina, State of Goiás (MZUSP 52732 and MHNG 2594.044) and Rio Uberaba headwaters, State of Minas Gerais (DZSJRP 8730). Number of specimens = n, standard deviation = SD.

	MZUSP 52732 (holotype), MHNG 2594.044 (2 paratypes)			DZSJRP 8730 (n=12)		
Character	Range	Mean	SD	Range	Mean	SD
Standard Length (mm)	28-63.7	43.2	18.4	29.6-61.3	43.4	7.9
Percentages of standard length						
Body depth	32.9-36.1	34.4	1.6	34.8-37.3	35.9	1
Head length	27.9-30	29.2	1.1	30.7-33.7	32.6	1.0
Predorsal distance	52.6-56.8	54.8	2.1	52.7-59.7	57.3	1.8
Preventral distance	48.4-51.2	49.9	1.4	48.6-54.9	52.2	1.8
Pelvic-anal fin distance	16.5-18.2	17.4	0.8	17.6-21	19.3	1.1
Caudal-peduncle depth	12.9-14.3	13.3	0.8	13.9-15.7	14.9	0.6
Caudal-peduncle length	15.7-17.6	16.9	1.1	13.2-16.9	15.2	1.1
Dorsal-fin base length	9.7-12.6	10.8	1.6	12-15.9	13.1	1
Anal-fin base length	18.7-19.5	19	0.4	18.2-21.3	19.6	1.1
Pectoral-fin length	18.2-21.1	19.3	1.5	14.4-17.9	16.2	1
Pelvic-fin length	13.4-14.3	13.9	0.5	13.2-15.9	14.5	0.7
Dorsal-fin length	21.3-23.9	22.2	1.5	21.8-28.7	24.9	1.9
Anal-fin length	16-17.6	16.8	0.8	16.8-19.9	18.5	1.1
Caudal-fin length	18.9-22.5	20.6	1.8	13.2-16.9	15.2	1.1
Percentages of head length						
Head depth	85.7-97.9	92.6	6.3	89.3-96.2	92.6	2.2
Orbital diameter	25.4-32.1	29.9	3.9	22.8-36.6	28.6	3.5
Snout length	22.6-26.5	23.9	2.2	20.5-25.9	23.3	1.6
Interorbital distance	32.1-34	33.3	1.0	26.9-32	30.2	1.4
Counts						
	Range	Mode		Range	Mode	
Dorsal-fin rays	8-8	8		7-8	8	
Anal-fin rays	8-14	12		12-15	13	
Caudal-fin rays	10+9-11+9	10+9		9+9-10+9	9+9	
Pectoral-fin rays	11-11	11		10-12	11	
Pelvic-fin rays	6-7	6		6-7	6	
Lateral line perforated scales	5-12	-		9-15	12	
Scales following lateral line	22-28	22		16-23	21	
Scales around caudal peduncle	14-14	14		14-16	16	
Scale rows above lateral line	4-5	5		5-6	6	
Scale rows bellow lateral line	4-4	4		4-5	4	
Scales in the anal-fin base	4-5	5		6-10	9	
Predorsal scales	10-13	-		10-16	12	
Teeth in maxilla	2-2	2		1-3	2	
Teeth in outer row of premaxillary	4-4	4		3-4	4	
Teeth in inner row of premaxillary	5-5	5		4-4	4	
Teeth in dentary	4-4	4		4-4	4	

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